Claims

[c1]   What is claimed is:

A model based mechanical controller, comprising:

at least one modeled mechanical component that models
at least one actual mechanical component;

at least one recipe model, wherein each of said at least
one modeled mechanical components is communica-
tively connected to at least one of said at least one
recipe models;

an executor resident above said at least one modeled
mechanical component and said at least one recipe
model that coordinates at least one of the modeled me-
chanical components with at least one of the recipes to
provide for virtual control of the at least one modeled
mechanical component according to at least one empiri-
cally derived task within the at least one recipe model;
and

at least one interface that communicatively connects the
executor to the at least one actual mechanical compo-
nent for actual control of the at least one actual mechan-
ical component in accordance with the virtual control.

[c2]   The model based mechanical controller of claim 1,

wherein the virtual control comprises real time control.

[c3]   The model based mechanical controller of claim 1, wherein the virtual control controls at least two selected from the group consisting of speed, tension, pressure, power, and volume.

[c4]   The model based mechanical controller of claim 1, wherein at least one mechanical tolerance is maintained in real time by the virtual control.

[c5]   The model based mechanical controller of claim 1, wherein said at least one interface comprises at least one COM interface.

[c6]   The model based mechanical controller of claim 1, wherein said at least one recipe comprises at least two equations corresponded to the empirically derived task, each equation having at least two predetermined coefficients and at least two variables.

[c7]   The model based mechanical controller of claim 6, wherein said at least one recipe provides for modification of at least one of the at least two variables by the executor for virtual control.

[c8]   The model based mechanical controller of claim 7, wherein said at least one interface provides feedback to

said executor of the actual control, and wherein the feedback allows said at least one recipe to modify at least one of the at two variables.

[c9] The model based mechanical controller of claim 1, further comprising at least one integrated developer associated with said executor, wherein said at least one recipe is developed within said at least one integrated developer.

[c10] A model based controller, comprising:
a plurality of mechanical models, wherein a first at least one mechanical model represents at least one mechanical device and wherein a second at least one mechanical model represents an emprically derived performance of the at least one mechanical device;
a coordinator that allows the second at least one mechanical model to control the first at least one mechanical model for virtual control of the first at least one mechanical model; and
at least one COM interface that converts the virtual control to actual control of the at least one mechanical device.

[c11] The model based controller of claim 10, wherein the virtual control comprises real time control.

[c12]   The model based controller of claim 10, wherein the
         second at least one mechanical model comprises at least
         two equations each having at least two predetermined
         coefficients and at least two variables.

[c13]   A method of controlling at least one mechanical device,
         comprising:
         modeling a performance of the at least one mechanical
         device to a recipe;
         modeling the at least one mechanical device to a model;
         communicatively connecting the model to the recipe in
         an executor;
         coordinating, within the model executor, the model with
         the recipe to provide virtual control of the at least one
         mechanical device; and
         converting the virtual control to actual control of the at
         least one mechanical device via a COM interface.

[c14]   The method of claim 13, further comprising developing
         the recipe in a developer, wherein the developer is com-
         municatively connected to the executor.

[c15]   The method of claim 13, wherein at least one of the at
         least one mechanical device comprises a lathe.

[c16]   The method of claim 13, further comprising:
         distributing at least two of the at least one mechanical

devices remotely from each other; and

associating the executor with a location of one of the at
least two remotely distributed mechanical devices.

[c17]   The method of claim 13, wherein said coordinating com-
prises real time modification of the model by the recipe
to maintain tolerances within the recipe.